

Analysis and Development of Entrepreneurship in Agriculture

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Keywords: Dutch agriculture, sustainability, entrepreneurial qualities, skills, personal characteristics, participatory approach

Abstract

Sustainable agriculture is an important issue in the Netherlands. A balance between People, Planet and Profit is necessary to create a sustainable agriculture. Entrepreneurial qualities are important for farmers to find this balance for his particular situation. Therefore, three research institutes of Wageningen UR have started a joint project to analyse and develop entrepreneurship in agriculture, being started in 2002 and ending in 2005. This project is linked to several existing farmers networks, in which farmers are facilitated through research to develop organic or integrated agriculture. Entrepreneurship of co-operating farmers was analysed through a questionnaire, resulting in an overview of strengths and weaknesses. Through this, topics were identified for improvement of specific entrepreneurial qualities through participatory work. The results showed a generally low score on farm management and strategic planning, relationship with personnel and personnel management, information seeking and finding, learning and networking, and personal characteristics. In 2003 five participatory projects were started. Farmers were invited to participate in these projects. The projects existed in two or three meetings and farmers had to do some homework in between. Various analysis and simulation tools were used. Farmers received a report, in which individual results were compared with the group average. In 2004, all projects will get a second round and a new project about 'employership' will be set up. Monitoring and evaluation is an important issue in this project, to improve both the content and the process of the participatory projects. The lessons learned can also be translated into a training for advisors or into an educational course. The questionnaire is a useful tool for analysis of entrepreneurship and will be transformed to an internet tool for farmers. The participatory approach seems to be a fruitful method to improve entrepreneurial qualities of farmers.

INTRODUCTION

Sustainability is a major theme in Dutch agriculture. The negative environmental effects of agriculture in the past have resulted in a strong focus on a more sustainable agricultural practise (Poot et al. 2003). The Dutch government therefore stimulates integrated and organic agriculture, also through large research projects in co-operation with farmers.

The short history of sustainable agriculture has taught us that a balance is needed

between People, Planet and Profit, and that the farmer plays a major role in finding this balance for his own farm. The entrepreneurial qualities and skills of the farmer are very important for the development of a sustainable agricultural practise in the Netherlands (De Lauwere et al. 2002a, De Lauwere et al. 2002b). Therefore, entrepreneurship is one of the major themes of the research programmes of the Dutch Ministry of Agriculture, Nature and Food Quality.

Three research institutes of Wageningen University and Research Centre have started in 2002 with a project on entrepreneurship in Agriculture, co-ordinated by Applied Plant Research (PPO). The project is closely related to existing farmers networks, in which farmers are facilitated through research to develop integrated or organic agriculture (www.telenmettoekomst.nl, Wijnands et al. 2002; Wijnands and Holwerda, 2003).

The overall project aim is “improvement of entrepreneurship in the Dutch agriculture.” The project has three phases: 1. Measurement and analysis of the entrepreneurship of farmers (2002); 2. Development of methods to improve several aspects of entrepreneurship (2002/2003) and 3. Participatory projects with farmers to test the methods developed and to improve the quality of the participating entrepreneurs (2003-2005).

The paper describes the analysis of entrepreneurship and the participatory approach, explaining both the methods and the results. The future ambitions of the project and the overall conclusions are discussed at the end.

Analysis of Entrepreneurship

Before analysing the entrepreneurial qualities of farmers, the relevant aspects of entrepreneurship had to be identified. Therefore, in scientific literature was searched for the elements of knowledge, skills and attitude contributing to a high score on People, Planet and Profit. This literature review was complemented with brainstorm sessions with representatives of the government, agricultural business and research institutes. This resulted into an extensive list with aspects of entrepreneurship related to sustainable agriculture (De Lauwere et al., 2004). Some elements are frequently mentioned in literature. These are briefly worked out in the following paragraphs, drawing a profile of a good entrepreneur.

Aspects of Entrepreneurship

1. Farm Management and Strategic Planning. A ‘good’ entrepreneur has established his short term and long term farm strategies and is able to express these in SMART terms (Specific, Measurable, Acceptable, Realistic and Time scheduled). He is searching for information to improve sales perspectives and internal farm processes. The farmer communicates with the social and commercial environment of the farm. Long term planning is an important issue for the farmer, using own farm data and data from colleagues.

2. Soil Fauna, Ecosystems and Farm Hygiene. Sustainable entrepreneurship means that the farmer understands the importance of the soil for crop production. He stimulates valuable soil fauna, adding organic matter and avoiding the use of damaging pesticides. He optimises nutrient supply, decreasing losses to the environment and increasing crop uptake. The farmer works on prevention of pests, diseases and weeds through improvement of crop management and farm hygiene, reducing the application of pesticides.

3. Relationship with Personnel. Good entrepreneurship means the understanding of the importance of qualified employees. Therefore, the farmer takes measures to attract and to keep employees on his farm, improving working conditions and paying satisfying wages. Qualified employees are involved in the improvement of production, farm strategy and working conditions.

4. Relationship with Suppliers, Customers and other Partners in the Agricultural Chain, Chain Oriented Thinking. A good entrepreneur understands the importance of a good relation with suppliers for an timely and reasonably priced deliverance of high quality

inputs. He works on a stable relationship with customers, keeping them satisfied. The farmer takes initiatives to improve customer satisfaction and chain efficiency.

5. Craftsmanship, Professional Skill. The farmer realises a high level of production and product quality and makes efficient use of inputs (labour, nutrients, crop protection, energy). He is focused on an optimal crop growth, preventing problems with pests, weeds, diseases and water surplus or drought. The farmer has a thorough insight in his own farm processes and results, being aware of strengths and weaknesses. Registration of farm data and comparison with former years and with colleagues gives the farmer information about aspects to improve.

6. Information Seeking and Finding, Networking. A good entrepreneur searches for decision-supporting information in an active and structured way. He uses various information sources, e.g. journals, internet, excursions and field days. His network consists of other farmers, advisors and sales representatives of various suppliers. Through this, the farmer compares his farm with others and is well informed about the latest developments in crop protection, plant nutrition and mechanisation.

7. Personal Characteristics. A good entrepreneur is continuously aware of his farm and personal strengths and weaknesses and has a good understanding of competitors, customers and consumers. He is willing to take some risks to improve his farm results and takes initiatives. The farmer has a high level of leadership, is creative to find new solutions for practical problems or to create new sales perspectives (De Lauwere, 2004).

However, the level of entrepreneurship is assumed to be not an absolute qualification from all seven aspects listed, but dependent on the relevance of specific entrepreneurial skills for a farmer. The size of the farm, the labour intensity, the variety of products and the ambitions of the farmer are so different that a standard of good agricultural entrepreneurship cannot be set. For example, an arable farmer without employees does not need very good personnel management qualities.

MATERIALS AND METHODS

The analysis has a twofold goal: Measurement of the level of entrepreneurship and interactive identification of aspects to improve through participatory work. The analysis of entrepreneurship is based on an interview with individual farmers, using a questionnaire in which the 7 main elements of entrepreneurship have been translated into a number of questions per element. These questions are partly multiple choice and partly open type questions. For some open questions, the interviewer has to score the farmer through analysis of the answers given. In the interviews, the farm situation and the personal situation of the farmer are analysed as well, to get some information about the relevance of various entrepreneurial aspects for the farmer interviewed. The questionnaire is described by Roelofs et al. (2003).

The answers of the questionnaire are used to calculate a score on the various aspects of entrepreneurship. The various answers per question are related to a quantitative scale. This results into a quantitative score for each of the seven elements per individual farmer, varying from 0 (= low) to 10 (high). The scores of a group of farmers can be averaged, making a comparison between individuals and a group average value possible. This comparison gives more information about the strengths and weaknesses of entrepreneurship of specific farmers or groups.

The results of the analysis are communicated to farmers, to make them aware of their personal strengths and weaknesses. All farmers interviewed receive an individual report, and a number of workshops with groups are held to discuss the results with farmers. These workshops enable an interactive identification of themes and methods for participatory work.

RESULTS

Questionnaire

In 2002 91 interviews were held with farmers of various sectors (Table 1). These farmers participate in farmers networks, related to other research projects of Wageningen UR about sustainable agriculture. Therefore, this selection of 91 farmers does not give a representative overview of entrepreneurship in Dutch Agriculture.

The results showed a generally low score on the relationship with personnel and personnel management. A relatively high score was shown for soil and ecosystem, craftsmanship and chain oriented thinking (Fig. 1). Significant differences between interviewed groups are observed for ecosystem: Fruit growers, organic arable farmers, greenhouse farmers and integrated tree growers showed a significantly higher score than the other sectors. For chain oriented thinking, fruit growers, greenhouse farmers and mushroom farmers had a significantly higher score than the other sectors. For the other entrepreneurial aspects no significant differences were observed between sectors.

For all farmers interviewed, the aspects with the lowest, the second lowest and the third lowest score were identified. The aspect personnel had the highest number of lowest scores (60%), personal characteristics was the most frequent aspect on the second lowest score (45%) and farm management and strategic planning had the highest frequency on the third lowest score (32 %). In all sectors, more than 50% of the farmers had a low score (first, second or third lowest) on personal characteristics (85%), personnel (67%) information seeking and finding (56%) and farm management (51%). The analysis of the results is described by De Lauwere et al. (2004).

The individual results of farmers were presented in a radar diagram (Fig. 2), compared with target values for each aspect. In this example, the farmer scores relatively well on all aspects, except for farm income. This aspect is added to the entrepreneurial aspects and shows the farmers satisfaction about the farm income. The target values are calculated with the scores of the whole group: 25 percent of the farmers scores above and 75 percent below the target value. The reflection of individual farmers on their results was part of the project, enlarging the awareness of personal strengths and weaknesses. Farmers were very positive about the interview and the feed-back of the results, holding a mirror up to their face.

Participatory Projects

During the interviews, farmers could give preferences for aspects of entrepreneurship to improve through participatory work. This information was added to the results of the analysis to set up the participatory projects. In 2003, five participative projects were set up on the following themes: a. customer- and chain orientation; b. social responsibility; c. cost price management; d. strategic management and e. becoming aware of consequences of the Mid Term Review (MTR) of the Common Agricultural Policy of the EU. The last one was a result of a project of Applied Plant Research and the Agricultural Economics Research Institute in the North East of the Netherlands (Van der Waal, et al. 2003). For every project, specific entrepreneurial aspects were addressed to improve through this specific project.¹

The set-up of these projects was facilitated through a standard form with two parts: One about the learning aims for the farmers and one about the learning aims for the researchers. This format provided a logical structure for the researchers, to make the work more focused and the results more measurable. The monitoring and evaluation is facilitated though a checklist with M&E topics, e.g. group processes, role of researchers and the major

¹ The Common Agricultural Policy of the European Union will change in the next few years, as described in the Mid Term Review. In the current situation, European farmers receive subsidies per ton product. These subsidies will decrease in the next few years, but farmers will receive additional subsidies that are related to the size and the environmental performance of the farm

learning points.

1. General Outline. The participating groups were regionally formed. In some cases, participation was limited to a specific sector. Farmers were invited to participate through various means: Participants of networks were invited by network coaches and other farmers by researchers or regional partners. In general, all projects had two or three meetings and farmers had to do some homework in between. In the cost price and the strategic management projects, the researchers had to do some calculations before the first meeting, with data supplied by the farmers. In almost all projects a few analysis tools were applied, varying from computer simulation of the farm budget (MTR) and a cost price calculation module to a strategic management tool for strategic planning. Each farmer receives a report with his individual results and a comparison with other farmers, if relevant. The various projects of 2003 are briefly described below.

1.1. Customer and Chain Orientation. In co-operation with two regional partner organisations in the North West of the Netherlands, a project was started to improve customer relationships and chain orientation. The customer satisfaction was used as an indicator for this aspect of entrepreneurship. Participants had to identify the various customers and the quality of the relationship. Based on a description of the current situation, farmers had to work on specific improvements in their farm management. Specific entrepreneurial skills to improve through this course are chain oriented thinking, building of customer relationships and self-reflection.

1.2. Social Responsibility and Appreciation. The social environment (society, government, cultural organisations and media) of a farm is important for its long term continuity ('licence to produce,' 'licence to deliver'). Therefore a project was set up for bulb growers in the North West of the Netherlands. The importance and the quality of relationships with the social environment are identified in the first meeting. When one or more important relationships have a low quality, an action plan is developed in co-operation with the individual farmer. Communication is an important part of the activities. Specific entrepreneurial aspects to improve: awareness of the social environment, social concern, building of relationships and communication.

1.3. Strategic Management. In the South West of the Netherlands a group of arable farmers and fruit and vegetable growers has started a participatory course on strategic management. In the meetings, each farmer identifies his competencies, the strengths, weaknesses and perspectives of his farm and the relevant external threats and opportunities. Moreover, he describes his personal and business goals and the critical success factors for reaching those goals. He combines all these aspects into a number of most appropriate and promising strategies for his own farm. A Strategic Management Tool is applied to confront the participant with questions on the consistency of the strategies selected. The project paid attention to improvement of strategic planning, knowledge of market demands, a system thinking approach, leadership and trying new ways.

1.4. Cost Price Management. A group of organic arable farmers and vegetable growers participated in a course on cost price management. The cost prices per crop were calculated by researchers, using information of farmers (accounting reports). The individual cost prices of the farmers were compared on the first meeting. This comparison had to result into strengths and weaknesses of farmers (relatively low or high cost prices) and aspects to improve. These results were summarised in an action plan per farmer. The entrepreneurial aspects to improve through this course were: understanding of the production and financial process, the price structure, analytical thinking and curiosity.

1.5. Awareness of Consequences MTR. Especially on arable farms in the North East of the Netherlands the consequences of the MTR are strongly negative, due to a high percentage of subsidised crops on these farms, such as wheat and starch potatoes. Some farmers are not aware of these consequences and do not anticipate through adapting their farm strategy. To make them aware and let them explore some alternative strategies, a project was set up with

about ten farmers, using a simulation model. The project improves the understanding of the market and price structure, farm economic processes and the analytical thinking of farmers and stimulates them to try new ways.

2. Results. The various projects in 2003 had 6-10 participants and 2-3 coaches or facilitators. In three cases, some farmers did not appear on the meetings. In general, participants were positive about the projects, providing them new insights. The analysis tools were used with the input of specific farm data, making the results very useful for participants. Some tools also provided a comparison between farmers, and in other cases, the comparison was made in a group discussion. This comparison and the related discussion confronted farmers with their own way of working.

The groups size and homogeneity were identified as critical success factors for the participatory approach. In the cost price project seven organic arable farmers compared cost prices of various crops. The unique farm situations caused a very poor comparison with only a few common crops (wheat, potatoes). However, for projects about strategic management and customer- and chain orientation, the variety of the group had to be fairly large. The participation of farmers from different sectors caused a very interesting discussion in the group, due to the various ways farmers deal with farm management and customers. They were stimulated to reflect on their own branch with an outsiders' view.

The importance of the group learning process is clearly illustrated in the participatory approach of improving entrepreneurial qualities. The comparison of their own results with results of their colleagues stimulates awareness of their own strengths and weaknesses. The discussion with colleagues urges farmers to express their implicit thoughts and behaviour, making them more conscious about their own way of entrepreneurship. On the other hand, the discussion between farmers stimulates also the mutual learning, and facilitates the translation of general lessons into the individual farm situation.

The group process requires a specific facilitating role of the researchers. Besides specific expertise, researchers need to be aware of group processes and have to be able to stimulate the group learning. All projects were carried out by two or three researchers, enabling some reflection on their facilitating.

Farmers were positive about the use of analysis and simulation tools, because their own farm situation was used for input. In the MTR project, farmers could simulate some scenarios, based on their current farm situation. The financial consequences of potential strategic decisions were very useful for farmers, helping them to deal with the consequences of the MTR for their own farm. In the cost price project, the influence of various farm characteristics on the cost price was shown through variation with the input of the cost price tool. The strategic management tool gave farmers insight in their own strengths and weaknesses.

The way of invitation proved to be very important for a good participation of farmers. An individual invitation, personal registration by farmers and some reminders before the meetings actually started were important elements to get a motivated group. When the invitation was presented more or less without obligations, farmers did not appear on meetings or were not motivated to do their homework.

In all cases, the participants were positive about the projects. This was evaluated at the end of the meetings. The results of the projects, in terms of improved entrepreneurial qualities, are evaluated after about half a year through a meeting or phone calls with participants. The implementation of lessons learned will be evaluated as well.

Future Ambitions

The ambitions of the project are focused on three elements: 1. The participatory projects; 2. monitoring and evaluation and 3. translation of the questionnaire into a useful tool.

1. Participatory Projects. In 2004, a new project about 'employership' will start, being a

weakness of many farmers interviewed. This project will start with a thorough analysis of underlying problems, by means of a few in depth interviews with farmers. This analysis will be the input of a participatory project to improve this specific entrepreneurial quality.

Except for the MTR project, all other projects are repeated in 2004, being improved with the experiences of 2003. The improvement of these projects is one of the major goals. At the other hand, the various projects deal with only one aspect of entrepreneurship, but working on better entrepreneurship means an improvement of all weaknesses. Therefore, the same farmers can participate in a different project in 2004. In 2005, the focus will be on the communication of the results.

2. Monitoring and Evaluation. The improvement of the participatory approach needs a thorough monitoring and evaluation (M&E) of the projects, focusing on content and process improvement. Already in the set-up of the projects, the M&E is an important element of the project plan. Researchers have to think about the most suitable way to improve the entrepreneurial skills of the participants through their specific project and the evaluation methods to measure the effects. The process aspect is very important: Researchers have to become facilitators of a group learning process. Therefore, researchers have to identify a few individual learning goals. Besides the personal learning goals, researchers have to make their experiences accessible for their colleagues. The M&E element can help them to express these experiences through some questions and points for attention.

A major question for the M&E is the scaling-up of the experience to a broader group of farmers. With two years of participatory work about 100 farmers can be reached. The experiences with these farmers can result in suggestions to improve the entrepreneurship of other farmers through more extensive methods. A more direct way of translating experiences into farmers' practise can be organised through articles in farmers' magazines, lectures for farmers meetings and internet.

The farmers network can also contribute to reach larger groups of farmers with the results of the project. Various people and organisations work on improvement of entrepreneurial qualities of farmers, varying from banks and advisory organisations to (agricultural) business education. The experience with the participatory projects can be used in the development of a training for advisors, the facilitation of customer meetings of banks or the contribution to an educational course.

3. Questionnaire. The questionnaire, used in the analysis of entrepreneurship, will be translated into a computer or internet tool for farmers. Parts of the questionnaire were already translated to a simple computer tool and used on farmers meetings, where farmers could fill in a relatively small number of 'easy' questions. The answers were presented graphically, in comparison with the results of the 91 interviewed farmers. This generated an interesting discussion with researchers. Therefore, the development of a tool has to take into account the way farmers deal with the presented results. A clear explanation of the results and some feasible suggestions to improve weaknesses is part of the tool.

CONCLUSIONS AND DISCUSSION

The improvement of sustainable entrepreneurship in agriculture is a difficult task. In many cases, farmers are not aware of their individual strengths, weaknesses and competencies, and are therefore not motivated to improve their entrepreneurship. The identification of weaknesses is an essential element to motivate farmers to improve their entrepreneurial qualities. The questionnaire is a useful tool to identify individual strengths and weaknesses. The presentation in comparison with the group average or a target value stimulates the awareness and self-reflection of farmers. Also the analysis phase of the participatory projects generates a better awareness of individual strengths and weaknesses.

The questionnaire does not give an absolute quantification of the level of entrepreneurship in agriculture. A low score on one aspect of entrepreneurship does not automatically mean that the farmer has a problem: The farm situation and the goals of the

farmer determine the importance of a specific aspect. This is an extra reason for a participatory approach and involvement of individual farmers.

The relationship between the questionnaire and the participatory projects is not one-to-one: The results of the interviews have shown the weaknesses and identified topics for the projects, but farmers participate on a voluntary basis. In this way, farmers can participate in a certain project while they do not have that specific weakness. When farmers participate on the basis of interest, it can happen that the farmers with a higher score on this topic will participate. That was observed for some of the participants in the project about strategic management. On the other hand, the voluntary base is a precondition for a participatory approach, resulting in a motivated group.

The group learning process contributes to the improvement of individual entrepreneurship, facilitating farmers to learn from colleagues and to become more conscious about personal strengths and weaknesses. The comparison of individual results and the discussion with colleagues are very useful methods to create a group learning process. The analysis and simulation tools can contribute this process effectively. Researchers have to develop facilitation skills to stimulate the group learning process.

Until now, the participatory approach is a fruitful method to improve entrepreneurship of farmers. However, the effect is limited to a small group. Lessons from the projects can give input for a more extensive approach to larger groups. The suggested internet tool is a first example of a benchmark tool through which farmers can identify strengths and weaknesses in their entrepreneurship. This benchmark function can stimulate them to improve their entrepreneurial skills. Results and lessons can be extended through training of advisors or the set-up of an educational course.

ACKNOWLEDGEMENTS

Thanks to Bartold van der Waal of Applied Plant Research for his role as project co-ordinator and for his contribution to the development and realisation of the Monitoring and Evaluation plan.

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Tables

Table 1. Number of farmers interviewed per sector

Sector	Short name	no. of farmers
Organic arable and vegetable growing	Arable (org.)	32
Integrated Bulb growing and Tree cultivation	Trees	11
Integrated arable and vegetable growing	Arable (int.)	23
Organic Fruit growing	Fruit	8
Conventional Mushrooms	Mushrooms	10
Conventional Greenhouse Horticulture	Horticulture	7

Figures

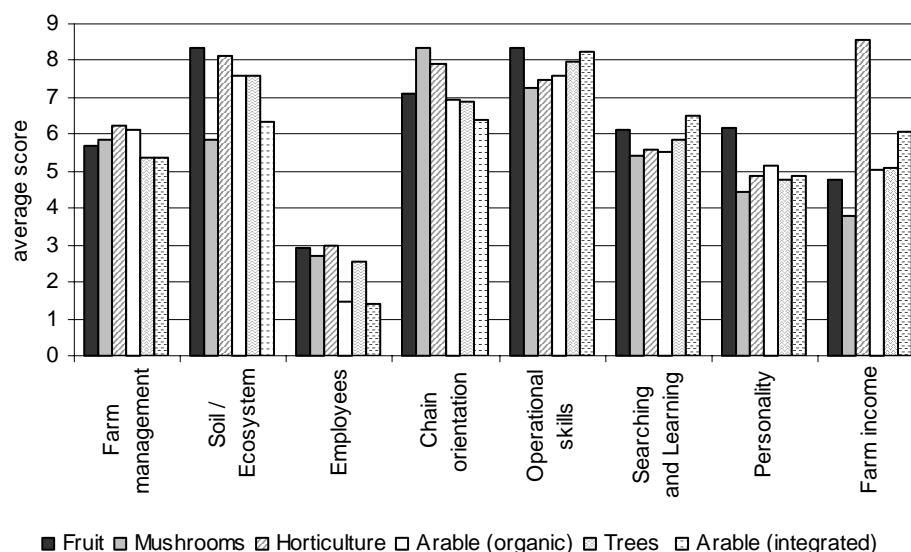


Fig. 1. Results of the analysis of entrepreneurship. Average scores per aspect are shown per sector.

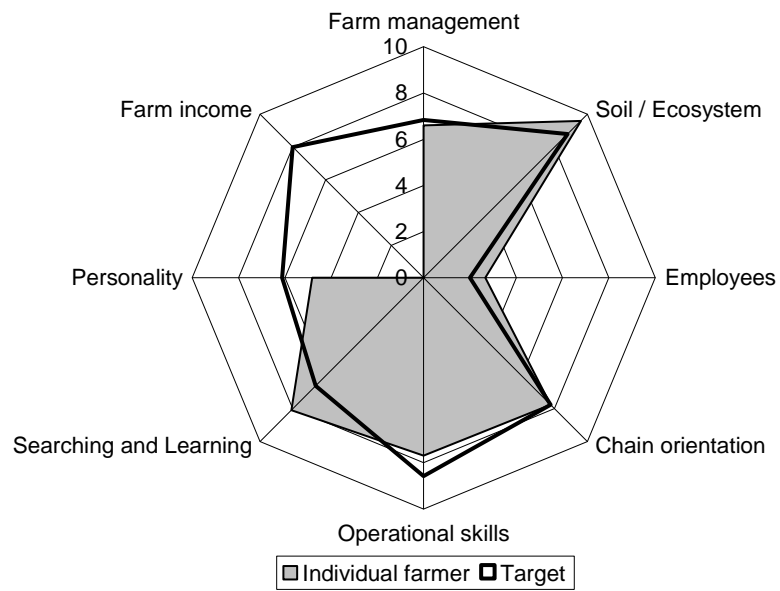


Fig. 2. Radar chart of an individual farmer, comparing his scores on various entrepreneurial aspects with a calculated target value.